

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (currently amended) An input device comprising:
a housing;
electronic circuitry for detecting user inputs and transmitting signals
corresponding to said inputs to an electronic device;
a sleep-mode circuit, coupled to said electronic circuitry, for activating a reduced
power operation of said electronic circuitry;
a capacitive hand detection circuit for detecting the proximity of a user's hand to
said housing and producing a hand detect signal; and
said sleep mode circuit being responsive to said hand detect signal to awaken said
electronic circuitry from said reduced power operation.

2. (original) The device of claim 1 wherein said input device is a pointing
device and said electronic device is a computer.

3. (original) The device of claim 1 wherein said hand detection circuit
detects the touch of a hand.

4. (currently amended) The device of claim 1 wherein said hand detection
circuit is a ~~capacitive detection circuit~~ mounted inside a top of said housing, such that a portion
of said housing insulates said user's hand from said capacitive hand detection circuit.

5. (currently amended) The device of claim 4 wherein said capacitive
detection circuit comprises:
first and second electrodes on said housing for capacitive connection with a user's
hand;

a first circuit, coupled to said first electrode, for determining an amount of time for charging of a capacitance connected to said first circuit; and

a second circuit, coupled to said second electrode, for determining an amount of time for discharging of a capacitance connected to said second circuit;

such that an internal virtual ground is produced between said first and second electrodes.

6. (original) The device of claim 5 wherein said first circuit comprises:

a comparator;

a controller coupled to an output of said comparator;

a voltage divider feedback circuit coupled between an output and a reference voltage input of said comparator;

a detection capacitor coupled between said first electrode and a signal input of said comparator; and

a switching circuit selectively coupling said signal input of said comparator to high and low voltage supplies.

7. (original) The device of claim 4 wherein said hand detection circuit includes first and second electrodes covering more than 25 percent of the underside surface of a top surface of said housing.

8. (original) The device of claim 4 wherein said electrodes are mounted on first and second opposed sides of said housing where they can be directly contacted simultaneously by the grasping of said user's hand.

9. (original) The device of claim 1 wherein said sleep mode circuit includes an interrupt input, and said hand detection circuit periodically activates, and provides an interrupt signal to said interrupt input when said user's hand is detected.

10. (original) The device of claim 1 wherein said input device is a mouse, and said electronic circuitry is an optical module for reflecting light off a surface and detecting movement of said mouse relative to said surface.

11. (currently amended) A mouse comprising:

a housing;

electronic circuitry for detecting user inputs and transmitting said inputs to an electronic device, said electronic circuitry including an optical module for reflecting light off a surface and detecting movement of said mouse relative to said surface;

a sleep-mode circuit, coupled to said electronic circuitry, for activating a reduced power operation of said electronic circuitry, said sleep mode circuit being responsive to a wake-up signal to awaken said electronic circuitry from said reduced power operation; and

a capacitive hand detection circuit for detecting the proximity of a user's hand to said housing and mounted inside a top of said housing, such that a portion of said housing insulates said user's hand from said capacitive hand detection circuit, said hand detection circuit producing said wake up signal, said hand detection circuit comprising

first and second electrodes on said housing for capacitive connection with a user's hand,

a first circuit, coupled to said first electrode, for determining an amount of time for charging of a capacitance connected to said first circuit, and

a second circuit, coupled to said second electrode, for determining an amount of time for discharging of a capacitance connected to said second circuit;

such that an internal virtual ground is produced between said first and second electrodes.

12. (currently amended) A method for operating an input device comprising:
detecting user inputs and transmitting said inputs to an electronic device external to said input device;

activating a reduced power mode of said input device in the absence of user inputs for a period of time;

capacitively detecting the proximity of a user's hand to said input device and producing a hand detect signal; and

awakening said input device from said reduced power mode in response to said hand detect signal.

13. (currently amended) The method of claim 12 wherein said detecting the proximity of a user's hand detects a change in capacitance inside a housing of said input device due to said proximity of a user's hand outside said housing of said input device.

14. (original) The method of claim 13 wherein said change in capacitance is determined using the simultaneous charging and a discharging of a capacitances coupled to two electrodes.

15. (currently amended) A method for operating an optical mouse comprising:

detecting movement of said optical mouse using optical detection and transmitting said movement signals to an electronic device external to said optical mouse;

activating a reduced power mode of said optical mouse in the absence of movement signals or other user input for a period of time;

capacitively detecting the proximity of a user's hand to said optical mouse by detecting a change in capacitance using the simultaneous charging and a discharging of capacitances coupled to two electrodes, producing an internal virtual ground between the two electrodes, and producing a hand detect signal; and

awakening said input device from said reduced power mode in response to said hand detect signal.

16. (currently amended) A computer mouse comprising:

a housing;

electronic circuitry for detecting movement of said mouse and transmitting movement signals to a computer;

a hand detection circuit for detecting the proximity of a user's hand to said housing and producing a hand detect signal; and

a response element, in one of said computer mouse and said computer, for activating a ~~function~~ light in said mouse, in response to said hand detect signal.

17-26. (canceled)

27. (currently amended) ~~The input device of claim 26~~ An input device comprising:

a housing;

electronic circuitry for detecting user inputs and transmitting signals corresponding to said inputs to an electronic device; and

an optical hand detection circuit for optically detecting the proximity of a user's hand to said housing and producing a hand detect signal;

a controller for turning on and off said light emitter, and providing said hand detect signal only after a predetermined number of on cycles provides a reflection to said detector above a threshold, wherein said controller further:

filters ambient light frequencies different from a frequency of said light emitter; cycles said light emitter on and off at a first rate before a hand detection, and at a second rate after a hand detection; and

requires detection of a hand for a predetermined number of cycles before issuing said hand detect signal.

28. (original) The input device of claim 27 wherein said controller removes said hand detect signal in the absence of a control input to said input device for a predetermined amount of time after a detection of a hand.

29. (currently amended) The input device of claim ~~20~~ 27 wherein said input device is a mouse.

30. (currently amended) The input device of claim 20 27 further comprising:
a sleep-mode circuit, coupled to said electronic circuitry, for activating a reduced
power operation of said electronic circuitry, said sleep mode circuit being responsive to said
hand detect signal to awaken said electronic circuitry from said reduced power operation.

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31. (canceled)
